

Application No.: 10/709,723

Docket No.: 22171-00016-US1

AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of drawings includes a change to FIG. 1, which adds reference number 23 for clarity to the previously illustrated helical spring/spiral coil, as described in the Specification.

No new matter is involved with this Drawing Amendment or Replacement Sheet. Entry of the Replacement Drawing Sheet is requested.

Submission of the Replacement Drawing Sheet is made concurrent with this facsimile amendment transmission to expedite Examiner review, and a paper copy will be separately provided to ensure the Replacement Drawing Sheet is acceptable for publication.

Attachment: One Replacement sheet (FIG. 1)

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REMARKS

Claims 1, 2, 4, 6, 8-11, 12, 15, 17, 19, 21-25, 28, 30, 32, and 34-46 are now pending in this application. Claims 1, 4, 12, 15, 25, and 28 are independent. Claims 1, 2, 4, 6, 8-11, 12, 15, 17, 19, 21-25, 28, 30, 32, and 34-37 have been amended; claims 38-46 have been added; and claims 3, 5, 7, 13, 14, 16, 18, 20, 26, 27, 29, 31, and 33 have been canceled by this amendment. No new matter is involved with any claim amendment or new claim.

Request for Supplemental "Notice of References Cited"

Applicant notes that the cited and applied reference to Cheng et al. (believed to be US 6,781,392) has not been cited in an IDS or in the Notice of References Cited (PTO-892) supplied with the Official Action dated October 5, 2004. In addition, the full patent number of Cheng et al. was not provided in the statement of the rejection, thus necessitating a search of the USPTO Patent Database by class and inventor name.

It appears that US 6,781,392 is the correct patent number for Cheng et al., but confirmation by receipt of a Supplemental "Notice of References Cited" would be appreciated for clarity, and to ensure that this reference appears on the face of any patent which might issue from this application.

Amendments to the Specification

Various amendments to the Specification have been made to correct minor grammatical and element numbering errors, and to ensure that the Specification more closely correlates to the Drawing Figures. These amended descriptions can be easily perceived with reference to FIG. 1, so that the amendment of the Specification does not introduce any new matter.

Also, the TITLE OF THE INVENTION has been changed to more clearly reflect the subject matter of Applicant's disclosure.

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Amendments to the Drawings

Figure 1 has been amended (by Replacement Sheet) to include reference number "23" for completeness.

No new matter is involved with the Drawing amendment. Entry of the Replacement Drawing Sheet is requested.

A paper version of the Replacement Drawing Sheet is being separately provided.

Anticipation Rejection over Chee

Withdrawal of the rejection of claims 1, 3, 5, and 11 under 35 U.S.C. §102(b) as being anticipated by Chee (US 6,084,420) (henceforth " '420' ") is requested. Claims 3 and 5 have been canceled, thus rendering their rejection moot. Dependent claim 11 now depends from amended independent claim 4.

Applicant notes that anticipation requires the disclosure, in a prior art reference, of each and every limitation as set forth in the claims.¹ There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. §102.² To properly anticipate a claim, the reference must teach every element of the claim.³ "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".⁴ "The identical invention must be shown in as complete detail as is contained in the ...claim."⁵ In determining anticipation, no claim limitation may be ignored.⁶

At least with respect to independent claims 1 and 4, and dependent claim 11, as amended, the applied art does not meet the requirements for anticipation set forth above.

¹ *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985).

² *Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

³ See MPEP § 2131.

⁴ *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

⁵ *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

⁶ *Pac-Tex, Inc. v. Amerace Corp.*, 14 USPQ2d 187 (Fed. Cir. 1990).

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With respect to independent Claim 1, the probe device for electrically testing an integrated circuit device recites, among other features, at least one supporter positioned inside the opening of the insulative body, wherein the supporter comprises a helical spring with a spiral coil extending substantially in a same plane.

On the contrary, the '420 patent discloses a probe assembly comprising a supporter (32, 34, 36) that certainly is not a helical spring. The '420 patent fails to disclose at least one helical spring with a spiral coil extending substantially in a same plane, such helical spring being an explicit limitation of independent claim 1.

By way of further explanation, when probe 26 deviates from the center of the supporter 20, the lateral elasticity of the spiral coil 23 will push the probe 26 back to central position automatically, i.e., spiral coil 23 can limit and restrict the probe 26 to move in a substantially vertical direction to avoid the problems caused by lateral movement of the probe as in the disclosed conventional approaches.

In addition, the '993 patent, discussed below with respect to the unpatentability rejection of claim 4, from which claim 11 now depends, fails to disclose the recited at least one helical spring with a spiral coil extending substantially in a same plane.

In contrast, the '993 patent discloses a helical spring with a cylindrical coil extending along the axial direction, which does not possess lateral elasticity to push probe back to the central position automatically when the probe deviates from the center of the supporter, although it can return the probe to its vertical rest position (not lateral position) after the measurement operation.

In summary, the helical spring with a spring coil extending substantially in a same plane possesses a self-centering capability according to the present application, while the helical spring disclosed in '993 patent does not possess such self-centering capability.

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Accordingly, since the applied art does not disclose all the features recited in claims 1 and 11, withdrawal of the anticipation rejection and allowance of these claims are respectfully requested.

Unpatentability Rejection over Chee in View of Harding

Withdrawal of the rejection of claims 2, 4, and 6-10 under 35 U.S.C. §103(a) as being unpatentable over Chee '420 in view of Harding (US 5,208,993) (henceforth " '993") is requested.

Claim 2 depends from allowable claim 1. Claim 4 has been amended into independent form, and includes additional non-obvious limitations therein; claims 6 and 8-11 have been amended to depend from claim 4; and claim 7 has been canceled.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, *the prior art reference must teach or suggest all the claim limitations*.⁷ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.⁸

An essential evidentiary component of an obviousness rejection is a teaching or suggestion or motivation to combine the prior art references.⁹ Combining prior art references without evidence of a suggestion, teaching or motivation simply takes the inventors' disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight.¹⁰

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary

⁷ See MPEP §2143.

⁸ *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

⁹ *C.R. Bard, Inc. v. M3 Systems, Inc.*, 48 USPQ2d 1225 (Fed. Cir. 1998)

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skill in the art.”¹¹ Further with regard to the level of skill of practitioners in the art, there is nothing in the statutes or the case law which makes “that which is within the capabilities of one skilled in the art” synonymous with obviousness.¹² The level of skill in the art cannot be relied upon to provide the suggestion to combine references.¹³

As discussed above, neither the ‘420 or ‘993 patents teach or suggest all the limitations of independent claim 1, from which claim 2 depends. Claim 2 is submitted as being allowable at least on that basis, without further recourse to the additional patentable limitations contained therein.

Further with respect to claim 2, the ‘993 patent discloses two helical springs positioned in series, and the ‘420 patent only discloses one supporter, i.e., both the ‘420 patent and ‘993 patents fail to disclose two supporters positioned substantially in parallel, as recited. In addition, larger probe contact force is achieved by arranging supporters in parallel while the dimension of the probe device can keep the same according to the present invention. On the contrary, larger probe contact force is achieved by increasing the thickness of the cylindrical coil of the helical spring, which may increase the overall dimension of the probe device according to the disclosure of ‘993 patent.

With respect to independent claim 4, the claimed probe device for electrically testing an integrated circuit device comprises at least one supporter positioned inside the at least one opening of the insulative body, wherein the supporter comprises a plurality of beams positioned in a radial manner and at least one ring connecting the beams.

In contrast, the probe assembly disclosed in FIGS. 1 and 2 of the ‘420 patent does not show a corresponding opening inside of the ceramic substrate (18), and a corresponding ring connecting the beams. Particularly, the supporter (32, 34, 36) is positioned on the surface of the ceramic substrate (18,) rather than inside a corresponding opening in the ceramic substrate

¹⁰ *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (Fed. Cir. 1985)

¹¹ See MPEP §2143.01, citing *In re Rouffet*, 149 F.3d, 1350, 1357, 47 USPQ2d 1453, 1457-8 (Fed. Cir. 1998).

¹² *Ex parte Gerlach and Woerner*, 212 USPQ 471 (PTO Bd. App. 1980).

¹³ See MPEP §2143.01, citing *Al-Site Corp. v. VSI Int'l Inc.*, 50 USPQ2d 1161 (Fed. Cir. 1999).

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(18). Further, the cylindrical housing (12) disclosed in FIG. 1 of '993 patent connects three rollers (16) at the outer end, and therefore the cylindrical housing (12) should be regarded as a corresponding *insulative body* rather than a corresponding ring as claimed.

Consequently, both the '420 and '993 patents fail to disclose a corresponding ring connecting the beams, as disclosed and claimed in the present application.

Furthermore, there is no teaching, suggestion or motivation to incorporate the '993 and '420 patents as mentioned above. In particular, the present application and claims are directed to electrical testing of the integrated circuit device with very small patterns such as signal pads, and the integrated circuit device and the probe device with substantially the same small patterns are fabricated by semiconductor fabrication technology or microfabrication technology. However, the semiconductor fabrication technology and microfabrication technology can only fabricate planar patterns such as the recited helical spring with a spiral coil extending substantially in the same plane.

In contrast, a helical spring with a cylindrical coil extending along the axial direction disclosed in the '993 patent certainly cannot be fabricated by using either the semiconductor fabrication technology or the micro-fabrication technology. In other words, there is no teaching, suggestion or motivation to incorporate the teachings of the '993 and '420 patents as suggested, and therefore the present application is submitted as being non-obvious in view of the suggested combination of the '420 and '993 patents.

Accordingly, independent claim 4 is submitted as being non-obvious in view of the '420 and '993 patents, and allowance of claim 4 is, therefore, respectfully requested.

Dependent claims 6 and 8-11 are submitted as being allowable at least on the basis of allowable independent claim 4, from which these claims depend, without further recourse to the patentable features recited therein.

For example, and with respect to dependent claims 6 and 8-10, the supporter is positioned inside a polygon-shaped opening, such as a triangular, quadrangular, or hexagonal opening, in

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the insulative body, as variously claimed. In contrast, '420 patent discloses a supporter (32, 34, 36) positioned on the surface of the ceramic substrate (18,) rather than inside a corresponding opening in the ceramic substrate (18).

Accordingly, reconsideration and allowance of claims 6 and 8-10 are, therefore, respectfully requested.

Unpatentability Rejection over Cheng et al. in View of Chee

Withdrawal of the rejection of claims 12, 14, 16, 18-25, 27, 29, and 31-37 under 35 U.S.C. §103(a) as being unpatentable over Cheng et al. (believed to be US 6,781,392) (henceforth " '392") in view of Chee '420 is requested.

The legal requirements for unpatentability have been set forth above.

Claims 14, 16, 18, 20, 27, 29, and 31 have been canceled, thus rendering their rejection moot.

Claims 19, 21, 22, 23, and 24 have been amended to now depend from claim 15, now drafted in independent form, and which includes additional non-obvious limitations therein.

Claims 32 and 34-37 have been amended to now depend from claim 28, now drafted in independent form, and which includes additional non-obvious limitations therein.

As for independent claim 12, the claimed probe card for electrically testing an integrated circuit device comprises a probe device having at least one supporter positioned inside the at least one opening of the insulative body, wherein the supporter comprises a helical spring with a spiral coil extending substantially in a same plane.

On the contrary, '420 patent discloses a probe assembly comprising a supporter (32, 34, 36) that certainly is not helical spring; the '993 patent discloses a touch probe comprising two helical springs with a cylindrical coil extending along the axial direction, and the '392 patent

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discloses a probe card comprising a circuit board, an interface board and a probe head. In other words, '420 patent, '993 patent and '392 patent all fail to teach or suggest a probe device having at least one helical spring with a spiral coil extending substantially in a same plane, as recited.

In addition, there is no teaching, suggestion or motivation to incorporate '993 patent and '420 patent as mentioned above, and therefore the present application is submitted as being non-obvious in view of the Examiner's suggested combination of the '420 patent, '993 patent and '392 patent.

Similar arguments as above hold with respect to independent claim 25, i.e., the '420 patent, '993 patent and '392 patent all fail to teach or suggest a probe device having at least one helical spring with a spiral coil extending substantially in a same plane, as recited.

Accordingly, reconsideration and allowance of independent claims 12 and 25 are respectively requested.

Unpatentability Rejection over Cheng et al. in View of Chee and Harding

Withdrawal of the rejection of claims 13, 15, 17, 26, 28, and 30 under 35 U.S.C. §103(a) as being unpatentable over Cheng et al. '392 in view of Chee '420 and Harding '993 is requested.

The legal requirements for unpatentability have been set forth above.

Claims 13 and 26 have been canceled, thus rendering their rejection moot.

Claims 15 and 28 have been drafted in independent form, and each include additional non-obvious limitations therein.

Claims 17, 19, and 21-24 now depend from independent claim 15; and claims 30, 32 and 34-37 now depend from independent claim 28.

With respect to independent claims 15 and 28, the claimed probe card for electrically testing an integrated circuit device comprises a probe device having at least one supporter

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positioned inside the at least one opening of the insulative body, wherein the supporter comprises a plurality of beams positioned in a radial manner and at least one ring connecting the beams.

In contrast, the probe assembly disclosed in FIGS. 1 and 2 of '420 patent does not teach or suggest a corresponding opening inside of the ceramic substrate (18), and a corresponding ring connecting the beams according to the present invention. Particularly, the supporter (32, 34, 36) is positioned on the surface of the ceramic substrate (18) rather than inside a corresponding opening in the ceramic substrate (18). Further, the cylindrical housing (12) disclosed in FIG. 1 of '993 patent connects three rollers (16) at the outer end, and therefore the cylindrical housing (12) should be construed as a corresponding insulative body, rather than a corresponding ring of the recited invention.

The '392 patent discloses a probe card comprising a circuit board, an interface board and a probe head. However, '420 patent, '993 patent and '392 patent all fail to teach or suggest a probe device having at least one supporter positioned inside the at least one opening of the insulative body, wherein the supporter comprises a plurality of beams positioned in a radial manner and at least one ring connecting the beams, as recited.

In addition, there is no teaching, suggestion or motivation to incorporate the teachings of the '993 patent and '420 patent as suggested by the Examiner and, therefore, independent claims 15 and 28 are submitted as being non-obvious in view of the '420 patent, '993 patent and '392 patent.

Accordingly, reconsideration and allowance of independent claims 15 and 28 are respectfully requested.

Furthermore, as dependent claims 17, 19, 21-24, 30, 32, and 34-37 now variously depend from allowable independent claims 15 and 28, allowance of these claims is also requested without further recourse to the patentable limitations contained therein.

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As for claims 17, 19, 21, 30, 32, and 34, the supporter of the probe device is variously recited as being positioned inside a polygon-shaped opening, such as triangular, quadrangular, and hexagonal opening, in the insulative body. In contrast, the '420 patent discloses a supporter (32, 34, 36) positioned on the surface of the ceramic substrate (18) rather than inside a corresponding opening in the ceramic substrate (18).

The applied art, taken alone or in combination, does not teach or suggest the variously recited limitations of these dependent claims. Accordingly, reconsideration and allowance of claims 17, 19, 21-24, 30, 32, and 34-37 are respectfully requested.

New Claims

New dependent claims 38-46 have been drafted to avoid the applied art, and to recite additional features of the claimed invention, as previously presented in various canceled dependent claims.

Claim 38 depends from allowable independent claim 1; claims 39-40 depend from allowable independent claim 4; claim 41 depends from allowable independent claim 12; claims 42-43 depend from allowable independent claim 15; claim 44 depends from allowable independent claim 25; and claims 45-46 depend from allowable independent claim 28.

By way of example, the two helical springs disclosed in '993 patent are positioned in series. The '420 patent only discloses one supporter, and '392 patent does not disclose the detailed structure of the probe head, i.e., '420 patent, '993 patent and '392 patent all fail to disclose two supporters positioned substantially in parallel, as recited in each of new claims 40, 41, 43, 44, and 46.

Consideration and allowance of claims 38-46 are respectfully requested.

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Conclusion

In view of the above amendment and remarks, Applicant believes that each of pending claims 1, 2, 4, 6, 8-11, 12, 15, 17, 19, 21-25, 28, 30, 32, and 34-46 in this application is in immediate condition for allowance.

In the event the Examiner believes that an interview would be helpful in resolving any outstanding issues in this case, the undersigned attorney is available at the telephone number indicated below.

Applicant believes no fee is due with this response. However, if a fee is due, please charge CBLH Deposit Account No. 22-0185, under Order No. 22171-00016-US1, from which the undersigned is authorized to draw.

Respectfully submitted,

By 

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Attachment: Replacement Drawing Sheet (FIG. 1)